

Claims

1. A coating composition comprising
 - 5 - at least one cerium(IV) compound,
either
 - at least one compound A having at least one isocyanate-reactive group and at least one free-radically polymerizable unsaturated group and
 - at least one isocyanato-functional compound B,
 - 10 or
 - at least one compound C having at least one isocyanate group and at least one free-radically polymerizable unsaturated group and
 - at least one compound D having at least one isocyanate-reactive group, and additionally
 - 15 - if appropriate at least one photoinitiator,
- if appropriate at least one solvent,
- if appropriate at least one free-radically polymerizable monomer,
- if appropriate at least one polyfunctional polymerizable compound, and
 - 20 - if appropriate further, typical coatings additives.
2. The coating composition of claim 1, wherein the cerium(IV) compound is selected from the group consisting of ammonium hexanitratocerate(IV) (cerium(IV) ammonium nitrate, $(\text{NH}_4)_2[\text{Ce}(\text{NO}_3)_6]$), sodium hexanitratocerate(IV) ($\text{Na}_2[\text{Ce}(\text{NO}_3)_6]$), potassium hexanitratocerate(IV) ($\text{K}_2[\text{Ce}(\text{NO}_3)_6]$), cerium(IV) ammonium sulfate ($\text{Ce}(\text{NH}_4)_2(\text{NO}_3)_6$), cerium(IV) hydroxide, cerium(IV) isopropoxide/isopropanol complex, cerium(IV) oxide (CeO_2), and cerium(IV) sulfate ($\text{Ce}(\text{SO}_4)_2$).
3. The coating composition of claim 1, wherein the cerium(IV) compound in the coating composition is obtained by oxidizing cerium compounds in a lower oxidation state.
4. The coating composition of claim 3, wherein cerium(III) compounds are used as cerium compounds in a lower oxidation state.
- 35 5. The coating composition of any one of the preceding claims, wherein the at least one compound A having at least one isocyanate-reactive group and at least one free-radically polymerizable unsaturated group is selected from the group consisting of 2-hydroxyethyl (meth)acrylate, 2- or 3-hydroxypropyl (meth)acrylate, 1,4-butanediol mono(meth)acrylate, neopentyl glycol mono(meth)acrylate, glycerol mono- and di(meth)acrylate, trimethylolpropane mono- and di(meth)acrylate, pentaerythritol mono-, di-, and tri(meth)acrylate, and 4-

- hydroxybutyl vinyl ether, 2-aminoethyl (meth)acrylate, 2-aminopropyl (meth)acrylate, 3-aminopropyl (meth)acrylate, 4-aminobutyl (meth)acrylate, 6-aminohexyl (meth)acrylate, 2-thioethyl (meth)acrylate, 2-aminoethyl(meth)acrylamide, 2-aminopropyl(meth)acrylamide, 3-aminopropyl(meth)acrylamide, 2-hydroxyethyl(meth)acrylamide, 2-hydroxypropyl(meth)acrylamide or 3-hydroxypropyl(meth)acrylamide, and the reaction products of (meth)acrylic acid with bisphenol A diglycidyl ether, bisphenol F diglycidyl ether, 1,4-butanediol diglycidyl ether, 1,6-hexanediol diglycidyl ether, trimethylolpropane triglycidyl ether or pentaerythritol tetraglycidyl ether.
6. The coating composition of any one of the preceding claims, wherein said at least one isocyanato-functional compound B is a diisocyanate having 4 to 20 carbon atoms.
7. The coating composition of claim 6, wherein said diisocyanate is an aliphatic or cycloaliphatic diisocyanate.
8. A method of coating substrates, which comprises coating a substrate with a coating composition of any one of the preceding claims.
9. A substrate coated with a coating composition of any one of claims 1 to 7.
10. The use of cerium(IV) compounds in dual-cure curing.